

An Inside Look at Drive-Through Dock Design and Vertical Storing Levelers

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Traditionally, picking up goods from or delivering goods to manufacturing facilities has not been performed under ideal conditions. Trucks must wait for sometimes lengthy (and often costly) periods to get dock space. Drivers have had to exit their truck cabs and open the trailer doors before backing up to an available dock door and/or to close the doors before leaving. In and of themselves, these processes create a host of issues:

- Drivers are exposed to potentially unsafe dock traffic conditions.
- Insects, dust and dirt can enter into the truck or product.
- Depending on the length of the wait, environmental conditions of the trailer can be compromised and energy use increased due to the open doors.
- Likewise, dock doors opened prematurely or left open expose the facility to outside contamination and increased energy loss.
- Products being loaded or unloaded may experience harmful temperature changes.
- The security of the trailer and its contents cannot be fully guaranteed.

Newer approaches to dock design, however, have the potential to mitigate these issues. One approach in particular, drive-through docks, allows facility personnel to load or unload trucks, including securing the doors, all within the confines of an enclosed dock. The truck driver does not have to open trailer doors and wait for a dock to open up or pull away from the dock to close trailer doors.

Equipment Changes and Vertical Storage Levelers

Drive-through docks are set up differently than typical dock design and, therefore, some required equipment/design changes are necessary to support them. For example, a shelter has to be incorporated, so more common types of seals (e.g., foam) cannot be used. Dock door spacing must be increased and doors must be enlarged to accommodate opening trailer doors inside the facility.

In addition, new or updated dock equipment may be required. Traditional dock design, for instance, incorporates a pit leveler to bridge the gap between the trailer's bed and the dock floor. Pit levelers inherently have a gap that allows energy loss, as well as insects and other unwanted vermin, to enter (although some companies do invest in leveler accessories to help seal the gap to prevent this). When not in use, pit levelers sit flush with the floor allowing fork trucks to back over and across them, increasing the risk of damage to the doors, walls, controls, product and equipment. Fork trucks have also been known to be driven out through a door and fall to grade.



Drive-through docks with VSLs enable truck doors to open when inside the facility, while preventing many of the common injuries associated with forklift use on the dock floor.

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Vertical Storing Levelers (VSLs) work well with the back-through design, helping eliminate many of these issues. Drivers do not need to open the trailer doors ahead of time, thus increasing product and personnel safety, saving energy, and reducing the risk of temperature adulteration or product contamination, loss and tampering. Dock doors can remain closed until the trailer is in place and secure, reducing facility environmental and energy losses. Plus, facility personnel control access and security to the product.

VSLs are stored vertically at the back edge and out of the pit space, allowing the trailer doors to be unlocked and swung open into the facility after the truck has arrived and been secured in place. VSLs allow overhead dock doors to close to the bottom of the pit reducing potential infestation and contamination and providing better environmental control over temperature and humidity extremes required in conditioned and refrigerated spaces.

In the stored position, VSLs keep fork trucks away from the doors that are not in use. When lowered into position, the fork truck is guided into the trailer, reducing facility damage. VSLs also allow easy pit access for open cleaning and wash down. Additionally, the leveler maintenance/safety support system allows safe maintenance on the levelers inside the building without the door being open. In multiple dock door applications with continuous recessed leveler pits, guards are installed between VSLs to prevent forklifts from accidentally driving into the pit. Controls for the VSL, truck restraint, dock door, dock light, etc. can be mounted within these guards for protection and easy access by the forklift driver.



In the stored position, VSLs keep fork trucks away from the doors when not in use. Controls for the VSL, doors and other equipment can be mounted within guards that are built to prevent fork lifts from driving into the pit area.

While some have questioned the safety of this leveler type, in most cases, these fears have been unfounded. For example, interlocks are available so that the VSL will not go down if the dock door is not open and the truck restraint engaged. Also, because of the hydraulic components in the vertical leveler, personnel have time to vacate the pit should the leveler be activated while they are still in the way of potential harm.

Additional Accessories and Benefits

Beyond those listed above, additional available accessories and benefits of VSLs and drive through docks include:

- When the dock position is in use, the use of under leveler seals, bottom shelter draft pillow seals and added lip corner seals help close gaps and control environmental conditions, dust, insects, etc.
- Special dock bumpers are required to be mounted to the building wall and base of the pit, outside the door.
- Doors locked to the bottom of the pit provide additional security by eliminating a potential entry point.
- Floor drains can be installed inside the pit to contain wash down rather than sloping the pits to the exterior face of the building and washing food and dirt outside.



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- Equipment design features and enhancements such as improved mounting and hinge design can provide for a smoother transition from the building to the trailer, resulting in less back/neck injuries and whole-body vibration to the fork truck driver, and therefore better ergonomics, safer working conditions and less damage to product and equipment.
- Optional hydraulically assisted truck restraints can help stabilize air-ride trailer drop and movement to reduce dropped trailers and minimize potential back and neck injury.

Are Drive-Through Docks and VSLs Right for Your Facility?

Companies planning a new facility or dock expansion may want to consider the potential benefits that drive-through docks and VSLs can offer, particularly if you are currently experiencing or are interested in improving environmental control, product food safety and security, or reducing forklift driver injuries and facility damage at your docks. Note that the installed costs for VSLs are approximately 10%-15% higher than comparably equipped pit-type levelers, however this cost is reduced as the number of units being installed increases.

More information on this subject is available by contacting Hixson.

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